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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/648,916

08/27/2003

Takamasa Ishii

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09/27/2005

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EXAMINER

GAGLIARDI, ALBERT J

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 09/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/648,916

Applicant(s)

ISHII ET AL.

Examiner

Albert J. Gagliardi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-27 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/05(2), 3/04(2).
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 9-10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.

Regarding at least independent claims 1, 23, 25, 26 and 27, the second conversion element arranged to detect a total dose must be shown or the feature(s) canceled from the claim(s). The examiner notes that, as best understood (see 35 U.S.C. 112 rejections below), at least a plurality of second semiconductor conversion elements must be connected in parallel in order to determine a total dose.

Regarding at least claim 8, the second conversion element arranged to detect a total dose must be shown or the feature(s) canceled from the claim(s). The examiner notes that, as best understood (see 35 U.S.C. 112 rejections below), none of the drawing appear to show a bias line (Vs line?) connected to first and second conversion elements except for elements that all include a switch (first elements?).

No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because at least reference characters 15, 16, 23, 24, 1015 and 1016 have been used to designate both source and drains and/or source contacts or drain contacts in at least Figs. 3, 6, 7 and 11. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and

informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: In at least Fig. 12, the drawings do not include reference signs MA43 and MA44. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Reference characters MA33 and MA34 (Fig. 12) are not recited (see page 28) in the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either

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“Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Appropriate correction is required.

6. The examiner further notes that there may be additional errors and that applicant should endeavor to carefully check all the drawing and the specification for any additional errors.

Specification

7. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Regarding independent claim 1, the claim is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01.

The omitted elements are: any elements that allow the apparatus to function as an image sensing apparatus. The examiner note that the preamble suggests that the apparatus is an image sensing apparatus but there are no elements and or combination of elements that allow the

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apparatus to function as an imaging apparatus. For example, one might consider that a radiation imaging apparatus may include at least a plurality of pixels elements arranged in a two dimensional array of rows or columns, and perhaps readout and processing sections. As best understood, though this is purely speculation on the examiners part, the claim appears to be directed to a conversion section reciting two conversion elements having a semiconductor formed from the same layer wherein the elements appear to be merely a subcomponent of another subcomponent which might represent a single pixel of an imaging device. In any event, a single sensing element does constitute an imager sensing apparatus.

11. Further regarding independent claim 1, the claim is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

The omitted structural cooperative relationships are:

(1) Any structural relationships that allow for a second conversion element to detect a total dose of radiation; and

(2) Any structural relationships that allow for semiconductor conversion element to be formed from the same layer.

Regarding point (1), the claim recites that the second element is arranged to detect a total dose, but the necessary arrangement that allows the element to detect a total dose is unclear, and how that arrangement is different from the arrangement for the conversion element (other than the recitation of the switch) is unclear. While it is not entirely clear, it would appear that even a conversion element configured to detect a total dose would also require at least some sort of

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switching element as well as other components in order to detect a total dose on the conversion section. It is further noted that, as best understood, that the drawings do not appear to suggest any embodiments wherein a second conversion element is arranged to detect a total dose (see for examples Figures 1, 4, and 12) where it appear that there must be at least a plurality of second conversion elements arranged in parallel in order to detect a total dose.

Regarding point (2), the claims recites that the semiconductor conversion elements have semiconductors formed from the same layer, but the structural arrangement (i.e., antecedent basis for “any” layers such as insulator layers, conductor layers, electrode layers, converter layers, etc.) that allows for the first and second layers to be formed on the same layer, as well as any inter-connections, is unclear.

12. Further regarding independent claim 1, the claim is rejected under 35 U.S.C. 112, second paragraph, as including limitations relating to a function (detecting a total dose), but such recitations do not include the term “means for.” A claim element that does not include the phrase “means for” or “step for” will not be considered to invoke 35 U.S.C. 112, sixth paragraph. If an applicant wishes to have the claim limitation treated under 35 U.S.C. 112, sixth paragraph, applicant must either: (A) amend the claim to include the phrase “means for” or “step for” in accordance with these guidelines; or (B) show that even though the phrase “means for” or “step for” is not used, the claim limitation is written as a function to be performed and does not provide any structure, material, or acts which would preclude application of 35 U.S.C. 112, sixth paragraph. (See MPEP 2181).

13. Regarding independent claims 23, 25 and 25, the claims are considered indefinite for the same reasons.

14. Regarding claim 8, claim 8 is rejected under 35 U.S.C. 112, second paragraph because it includes the limitation “a bias line . . . connected to said first semiconductor conversion element and . . . said second semiconductor conversion element.” The examiner notes that there does not appear to be any arrangements that include a common bias line for first and second types of elements (i.e., elements including a switch and elements not including a switch. As such, it is unclear whether or not there should be a plurality of bias lines, one for each type of element, or whether in any particular arrangement an element that is shown as including a switch (M43 for example) could be a first conversion element while another, even an element that includes a switch (M44 for example) could be a second conversion element.

15. Regarding claim 11, claim 11 is rejected under 35 U.S.C. 112, second paragraph because it includes the limitation “said thin film transistor.” There is insufficient antecedent basis for this limitation in the claim. The examiner notes that there is a thin film transistor in claim 9, which is not in the chain of dependency.

16. Regarding at least claims 12, 15 and 17, the claims are rejected under 35 U.S.C. 112, second paragraph because they seem to imply that the first and second elements recited in claim 1 are actually multiple elements, but there is no antecedent basis for the multiple first and second pixels.

17. The remaining claims are at least rejected on the basis of their dependency.

Claim Rejections - 35 USC § 103

18. **Note:** Due the considerable speculation and uncertainty regarding the proper interpretation of claims 1-27, no prior art rejections are being made at this time. As stated in *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962), a rejection under 35 U.S.C. 103 should

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not be based on considerable speculation about the meaning of terms employed in a claim or assumptions that must be made as to the scope of the claims. See MPEP 2173.06.

Election/Restrictions

19. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claim 1- 24, drawn to an imaging apparatus, classified in class 250, subclass 370.09.
- II. Claims 25-26, drawn to a method of making an imaging apparatus, classified in class 250, subclass 362.
- III. Claim 27, drawn to a method of using an imaging apparatus, classified in class 250, subclass 369.

20. The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the apparatus can be made by a materially different method such as a method wherein the switch element is not formed on the substrate, and/or wherein the first and second conversion elements are not formed simultaneously.

Inventions I and II and invention III are related as product (or product made) and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of

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using that product (MPEP § 806.05(h)). In the instant case the product as claimed can be used in a material different process such as a process with a different driving method or where the radiation irradiation is stopped after a predetermined time regardless of whether or not a dose reached a predetermined value.

21. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

22. No telephone call was made to request an oral election to the above restriction requirement because all claim have been examined (rejected under 35 U.S.C. 112).

23. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

24. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

25. This application contains claims, as best understood, directed to the following patentably distinct species of the claimed invention: At least the six species identified in the drawings as the first through the sixth embodiments. A possible seventh species identified as the reference embodiment may also be claimed.

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Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, it is unclear if any claims are generic.

26. Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

27. Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

28. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Conclusion

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (571) 272-2436. The examiner can normally be reached on Monday thru Friday from 9 AM to 5 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

30. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Albert J. Gagliardi
Primary Examiner
Art Unit 2878

AJG